

Work Order ID 150610

Monday, August 29, 2016 2:47:16 PM

646.3013
REV. N/C

150610

Page 1

Item ID: 646.3013

Revision ID:

Item Name: Blade

Start Date: 8/8/2016 Start Qty: 10.00

10

Required Date: 8/29/2016 Req'd Qty: 10.00

10

Reference:

N900040100

Setup Start *NS1*

Stop *NS2*

Cust Item ID:

Customer:

Approvals:

Process Plan:

DAS
21
9-89

Date:

AUG 31 2016

Tooling:

Date:

Run Start *NR1*

QC:

Date:

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr

Revision Nbr

646.3000

N/C

100

100

Bandsaw

Jeaspa Bandsaw

BAND SAW

Memo

Cut Blank at 4.930"

0.00

0.10

10

φ

DAS
49
9-89

16/10/14

110

110

HAAS 1

HAAS CNC vertical machine #1

HAAS CNC VERTICAL MACHINING #1

Memo

1-Machine per folio FB150

DWG REV: N/C

FOLIO REV: AA

0.03

1.23

10

φ

DAS
14
9-89

16/10/13

2- deburr and break all sharp edges except otherwise noted

KNIFE EDGE MUST BE SHARPENED USING STONE, REMOVE ALL
BURRS ON CUTTING EDGE

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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OTHER : _____																									

Work Order ID 150610

Monday, August 29, 2016 2:47:16 PM

150610

Page 2

Item ID: 646.3013

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Blade

Start Date: 8/8/2016 Start Qty: 10.00

10

Cust Item ID:

Required Date: 8/29/2016 Req'd Qty: 10.00

10

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

NR1

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	QC2- Inspect parts off machine FAI/FAIB	0.00							
120						10	0		88-14-30K
QC	Memo	0.03							16/10/31
Quality Control									
130	QC8- Inspect parts - second check	0.00							
130			Ba	16/11/01		10	0		DAS 08 9-89
QC	Memo	0.03							
Quality Control									
140	Outsource process - Heat Treat	0.00							
140						10		NOV 08 2016	DAS 13 9-89
Outsource1	Memo	80.00							
Outsource process - Heat Treat	HEAT TREAT AS PER DWG, SEE NOTE #3								
	ISSUE P/O: 34239								

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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Root Cause		FAULT CATEGORY																							
Environment ☐		No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐																			
Design ☐		Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐																			
Doc/Data ☐		Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐																			
Equip/Tooling ☐		Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐																			
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LOA ☐		Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐																			
Substation ☐		Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐																			
Past Expiry Date ☐		Manufacturing Process ☐	OTHER :																						
Misidentified ☐		Past Due ☐																							

Work Order ID 150610

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150610

Page 3

Item ID: 646.3013 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Blade
Start Date: 8/8/2016 Start Qty: 10.00 ***10*** Cust Item ID:
Required Date: 8/29/2016 Req'd Qty: 10.00 ***10*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	Receive & Inspect for Damage & Mat'l Certs	0.00							
150									
Packaging	Memo	0.03							
Packaging									
155	QC5- Inspect part completeness to step on W/O	0.00							
155									
QC	Memo	0.03							
Quality Control									
160	Spray Painting per QSI005 4.2	0.00							
160									
SprayPaint	Memo	0.10							
Spray Painting	PRIME AS PER DWG, SEE NOTE #4								
	PRIMER BATCH: <u>134100</u>								

10x 8/16-11-17

10

DAS 38 9-89 NOV 18 2016

10

DAS 41 9-89 16-11-25

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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Root Cause		FAULT CATEGORY																							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐		Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐		Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐																	
OTHER : _____																									

Work Order ID 150610

Monday, August 29, 2016 2:47:16 PM

150610

Page 4

Item ID: 646.3013

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Blade

Start Date: 8/8/2016 Start Qty: 10.00

10

Cust Item ID:

Required Date: 8/29/2016 Req'd Qty: 10.00

10

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

NR1

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
170	QC14- Inspect Spray Paint	0.00							
170									
QC	Memo	0.03							
Quality Control									
									DAS 38 9-89 NOV 29 2016
180	Identify as per dwg & Stock Location	0.00							
180									
Packaging	Memo	0.02							
Packaging	***IDENTIFY AS PER APICAL MPP-120 BY STAMPING P# AND REV***								
									DAS 6 9-89 NOV 29 2016
190	QC21- Final Inspection - Work Order Release	0.00							
190									
QC	Memo	0.02							
Quality Control									
									16/11/29 DAS 21 9-89 NOV 29 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small F ☐ Finishing ☐ Composite ☐ Water Jet ☐ MSTEEL-A2-BO.500X1.250 Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
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Past Expiry Date ☐	Manufacturing Process ☐								
Misidentified ☐	Past Due ☐	OTHER :							

Picklist Print

Monday, August 29, 2016 2:47:15 PM

Page 1

Work Order ID: 150610

150610

Parent Item: 646.3013

646.3013

Parent Item Name: Blade

Start Date: 8/8/2016

Required Date: 8/29/2016

Start Qty: 10.00

Required Qty: 10.00

Comments: IPP REV:A NEW ISSUE 12/11/09 JFS VERIFY BY: JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
MSTEEL-A2- B0.500X1.250		Purchased		No		100	f	6.7935	0.411	4.326316			

MSTFEI -A2-B0 500X1 250

AISI A2 TOOL STEEL BAR, 0.500 X 1.250

Location	Loc Qty	Loc Code
MAT	0.3125	
M134172	0.3125	→ 0.3125
MAT010	6.481	
M126438	5.452	
M127494	0.22	
M131783	0.609	
M133923	0.2	
M135710		→ 4.25

DAS
49 16/10/14
9-89

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

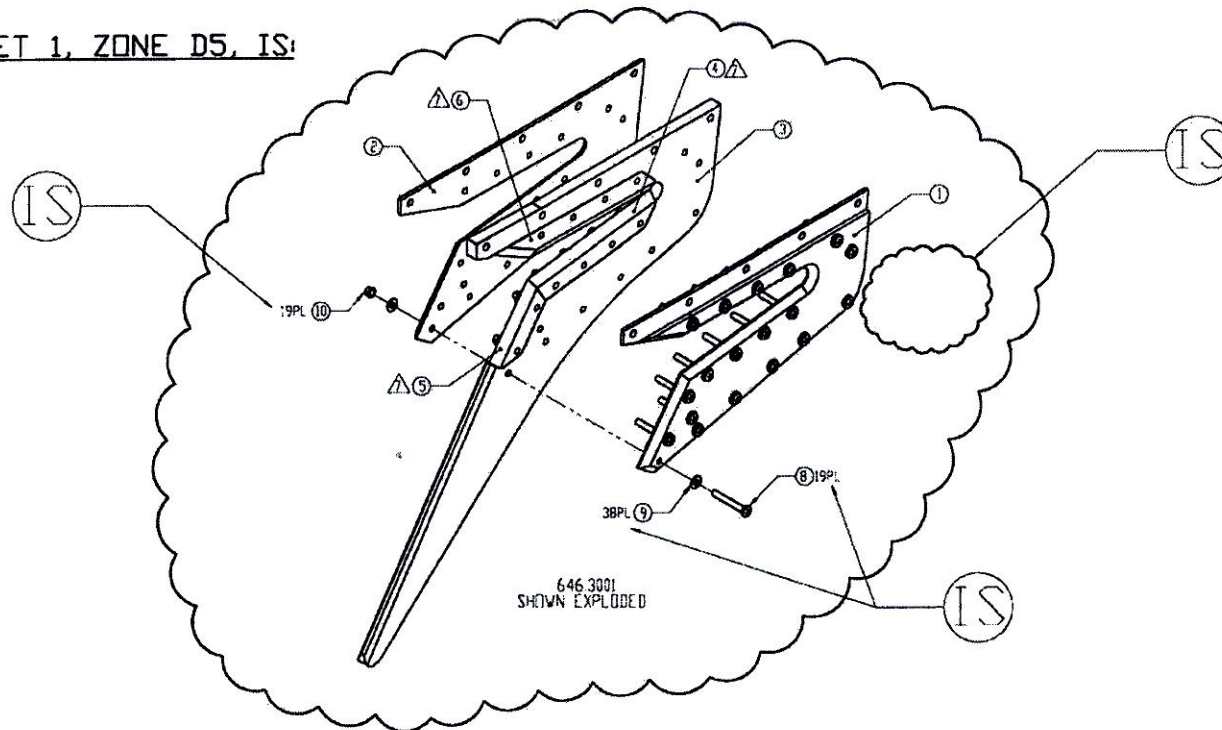
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Root Cause <table style="width:100%; border: none;"> <tr> <td style="border: none;">Environment ☐</td> <td style="border: none;">No Re-verification ☐</td> </tr> <tr> <td style="border: none;">Design ☐</td> <td style="border: none;">Operator ☐</td> </tr> <tr> <td style="border: none;">Doc/Data ☐</td> <td style="border: none;">Offset/Setup ☐</td> </tr> <tr> <td style="border: none;">Equip/Tooling ☐</td> <td style="border: none;">Supplier ☐</td> </tr> <tr> <td style="border: none;">Handling/Pre ☐</td> <td style="border: none;">Training ☐</td> </tr> <tr> <td style="border: none;">Material ☐</td> <td style="border: none;">Use for Testing ☐</td> </tr> <tr> <td style="border: none;">Internal Transport ☐</td> <td style="border: none;">Poor Information ☐</td> </tr> <tr> <td style="border: none;">Tribal Knowledge ☐</td> <td style="border: none;">Rushing ☐</td> </tr> <tr> <td style="border: none;">LOA ☐</td> <td style="border: none;">Product Improvement ☐</td> </tr> <tr> <td style="border: none;">Substation ☐</td> <td style="border: none;">Process Improvement ☐</td> </tr> <tr> <td style="border: none;">Past Expiry Date ☐</td> <td style="border: none;">Manufacturing Process ☐</td> </tr> <tr> <td style="border: none;">Misidentified ☐</td> <td style="border: none;">Past Due ☐</td> </tr> </table>		Environment ☐	No Re-verification ☐	Design ☐	Operator ☐	Doc/Data ☐	Offset/Setup ☐	Equip/Tooling ☐	Supplier ☐	Handling/Pre ☐	Training ☐	Material ☐	Use for Testing ☐	Internal Transport ☐	Poor Information ☐	Tribal Knowledge ☐	Rushing ☐	LOA ☐	Product Improvement ☐	Substation ☐	Process Improvement ☐	Past Expiry Date ☐	Manufacturing Process ☐	Misidentified ☐	Past Due ☐	FAULT CATEGORY <table style="width:100%; border: none;"> <tr> <td style="border: none;">Pressure/Forced ☐</td> <td style="border: none;">Temperature/Cure ☐</td> <td style="border: none;">Power Loss/Surge ☐</td> <td style="border: none;">Positioned Wrong ☐</td> </tr> <tr> <td style="border: none;">Bending ☐</td> <td style="border: none;">Set-up ☐</td> <td style="border: none;">Folio/Program ☐</td> <td style="border: none;">Outside Dimensions ☐</td> </tr> <tr> <td style="border: none;">Centre Not Concentric ☐</td> <td style="border: none;">BOM/Route ☐</td> <td style="border: none;">Grain ☐</td> <td style="border: none;">Over/Under tolerance ☐</td> </tr> <tr> <td style="border: none;">Cracks ☐</td> <td style="border: none;">Broken/Damage/Defect ☐</td> <td style="border: none;">Weld ☐</td> <td style="border: none;">Part Incorrect ☐</td> </tr> <tr> <td style="border: none;">Crimp/Kink/Ripple/Wave ☐</td> <td style="border: none;">Inspection Incomplete/Unqualified ☐</td> <td style="border: none;">Wrong Stock Pulled ☐</td> <td style="border: none;">Part Lost/Missing ☐</td> </tr> <tr> <td style="border: none;">Cuffs ☐</td> <td style="border: none;">Contamination ☐</td> <td style="border: none;">Out of Sequence ☐</td> <td style="border: none;">Part Moved ☐</td> </tr> <tr> <td style="border: none;">Crushing ☐</td> <td style="border: none;">Countersink ☐</td> <td style="border: none;">Off-set ☐</td> <td style="border: none;">Drawing ☐</td> </tr> <tr> <td style="border: none;">Heat Treat ☐</td> <td style="border: none;">Cut Too Short ☐</td> <td style="border: none;">Mislabeled ☐</td> <td style="border: none;">Finish ☐</td> </tr> <tr> <td style="border: none;">Wave/Twist in Tube ☐</td> <td style="border: none;">Instructions Incomplete/Unclear ☐</td> <td style="border: none;">Fit/Function ☐</td> <td style="border: none;">Misread ☐</td> </tr> <tr> <td style="border: none;">Marks/Chatter ☐</td> <td style="border: none;">Drill Holes ☐</td> <td style="border: none;">Misaligned/off center ☐</td> <td style="border: none;">Turning Sequence ☐</td> </tr> </table>			Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
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		OTHER : _____																																																																		

APICAL INDUSTRIES, INC.	ENGINEERING CHANGE NOTICE NO. 02195		SHEET 1 OF 4	
	DWG NO. 646.3000	REV: N/C	PREPARED BY S. HUFF	DATE: 01/05/09
	EFFECT ON DWG ☐ INC. ☒ UNINC.			
	DWG TITLE: LOWER CUTTER ASSY			
APPROVED BY: ENGR <i>[Signature]</i>		MFG <i>[Signature]</i>	QC <i>[Signature]</i>	EFF: NEXT ORDER
TRANSACTION CODES (TC): A-ADD C-CREATE R-REVISE D-DELETE		REASON: REMOVED RIVETS IN FAVOR OF ADDITIONAL SCREWS		

SHEET 1, ZONE D5, IS:

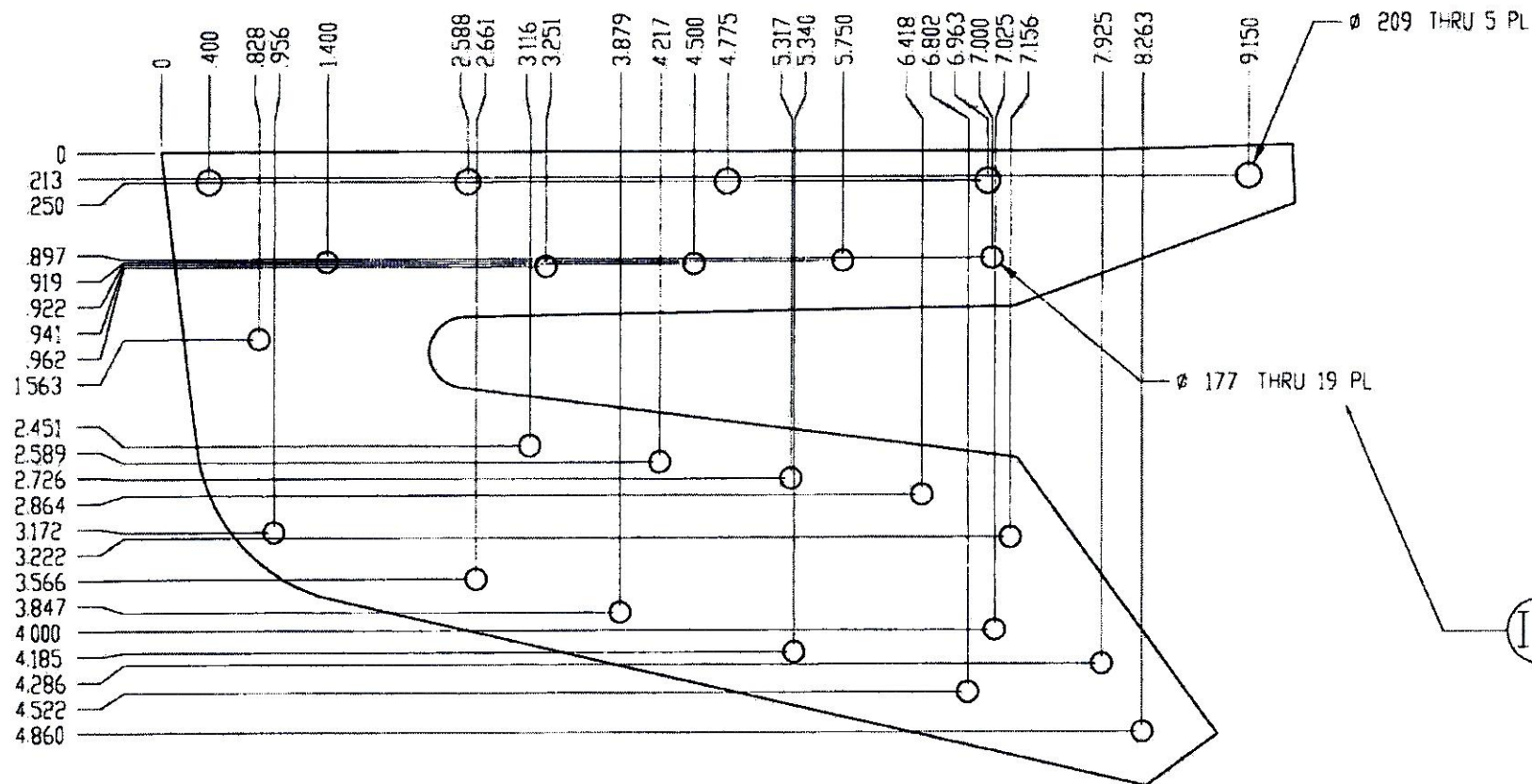


SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 150610 MJS

1608-31

10	R	601.1541	19	LOCKNUT	MS21042L08
9	R	601.2764	38	WASHER	NAS1149FN832P
8	R	601.2765	19	SCREW	MS27039-0819
7	D	601.2766	2	RIVET	MS20470AD5-18
			3001		
F/N	TC	PART NUMBER	QTY	DESCRIPTION	MATERIAL/SPECIFICATION
DOCUMENTS EFFECTED:				☐ MDL ☒ INSTALL INSTRUC ☒ ICA ☐ FMS ☒ BOM	CHANGE CATEGORY ☐ MAJOR ☒ MINOR
				DER REVIEW REQUIRED ☐ YES ☒ NO	

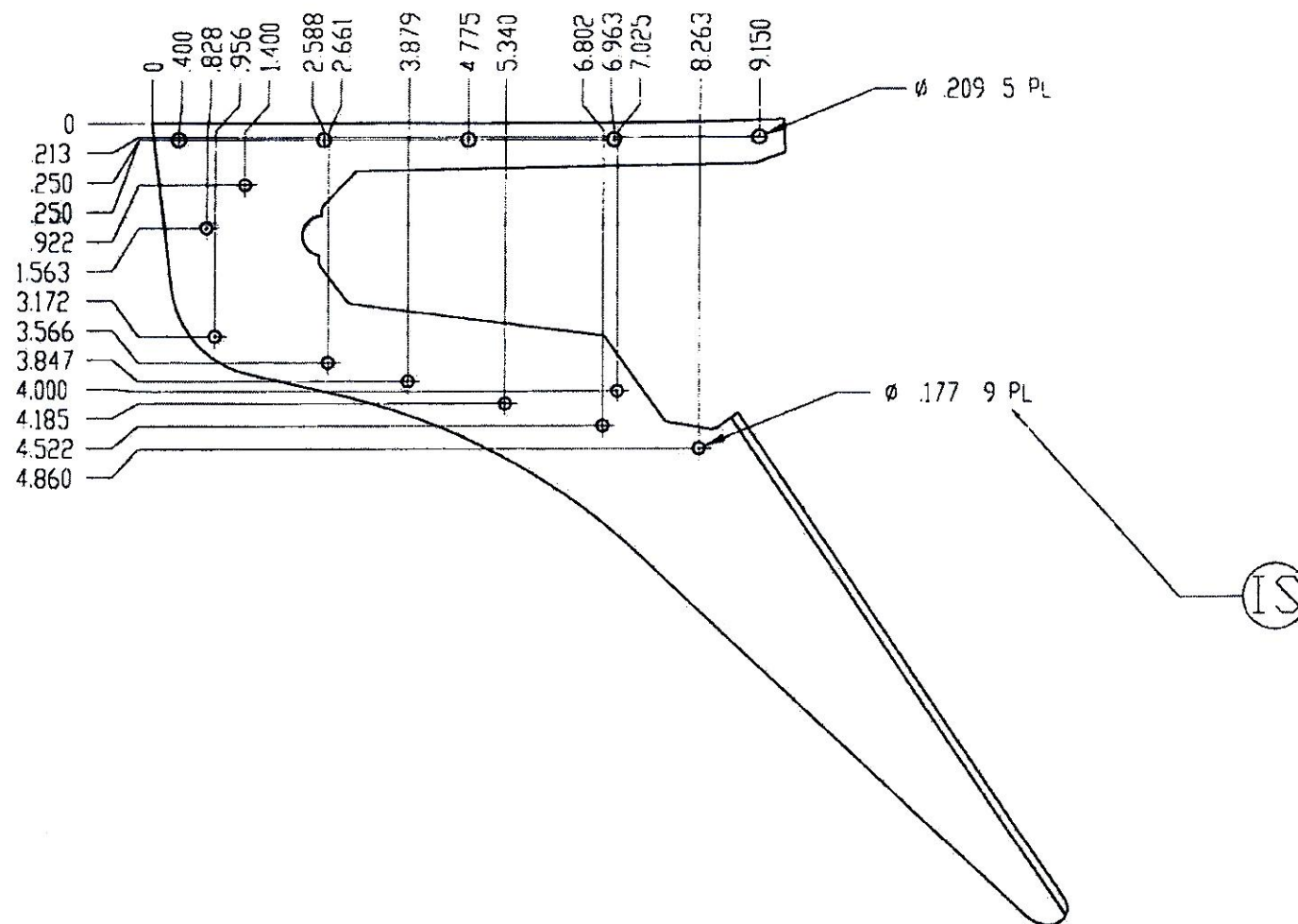
SHEET 3 IS:



SECTION A-A

2
C7

F/N	TC	PART NUMBER	QTY	DESCRIPTION	MATERIAL/SPECIFICATION

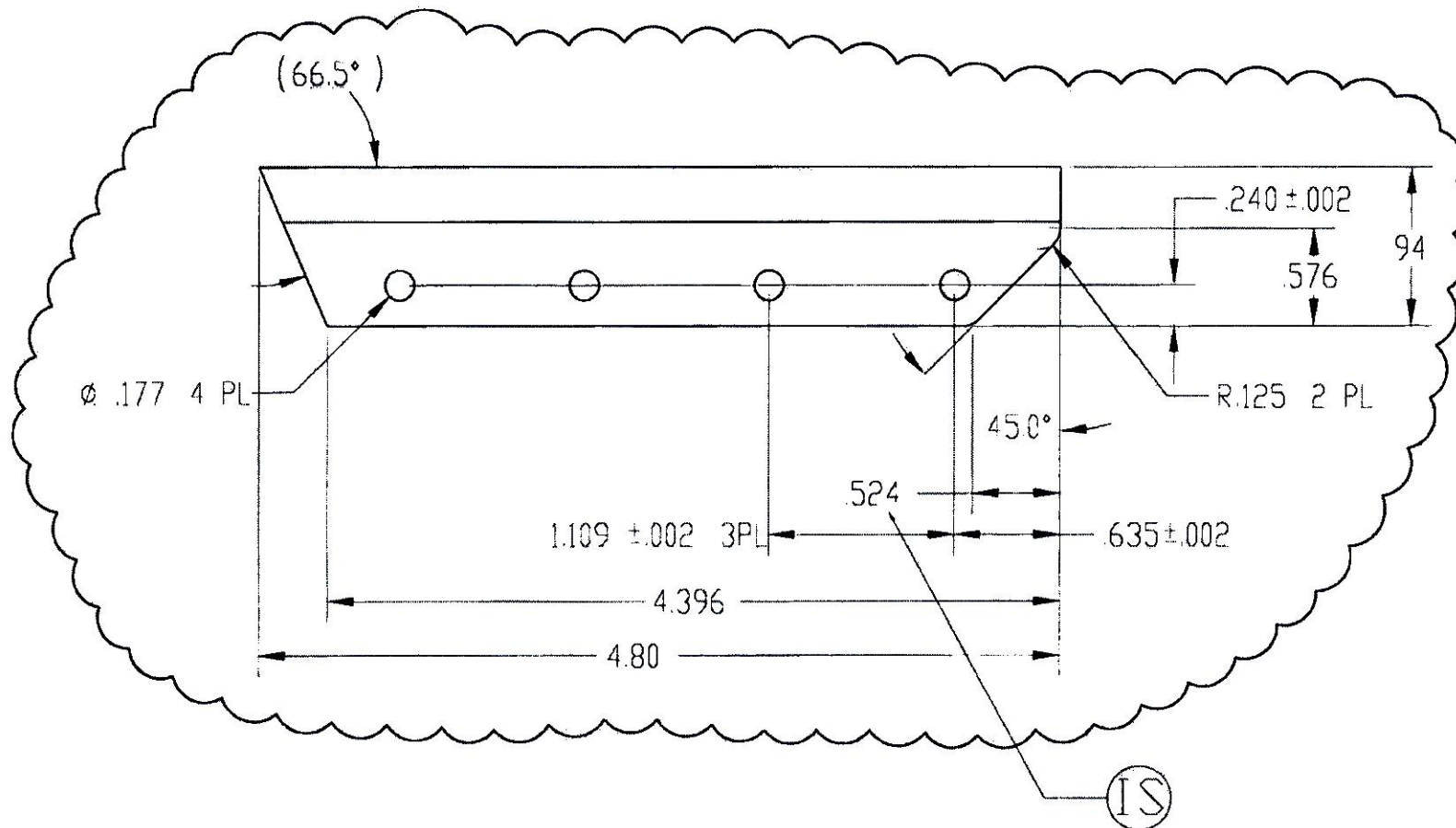
SHEET 5 IS:

SECTION F-F



F/N	TC	PART NUMBER	QTY	DESCRIPTION	MATERIAL/SPECIFICATION

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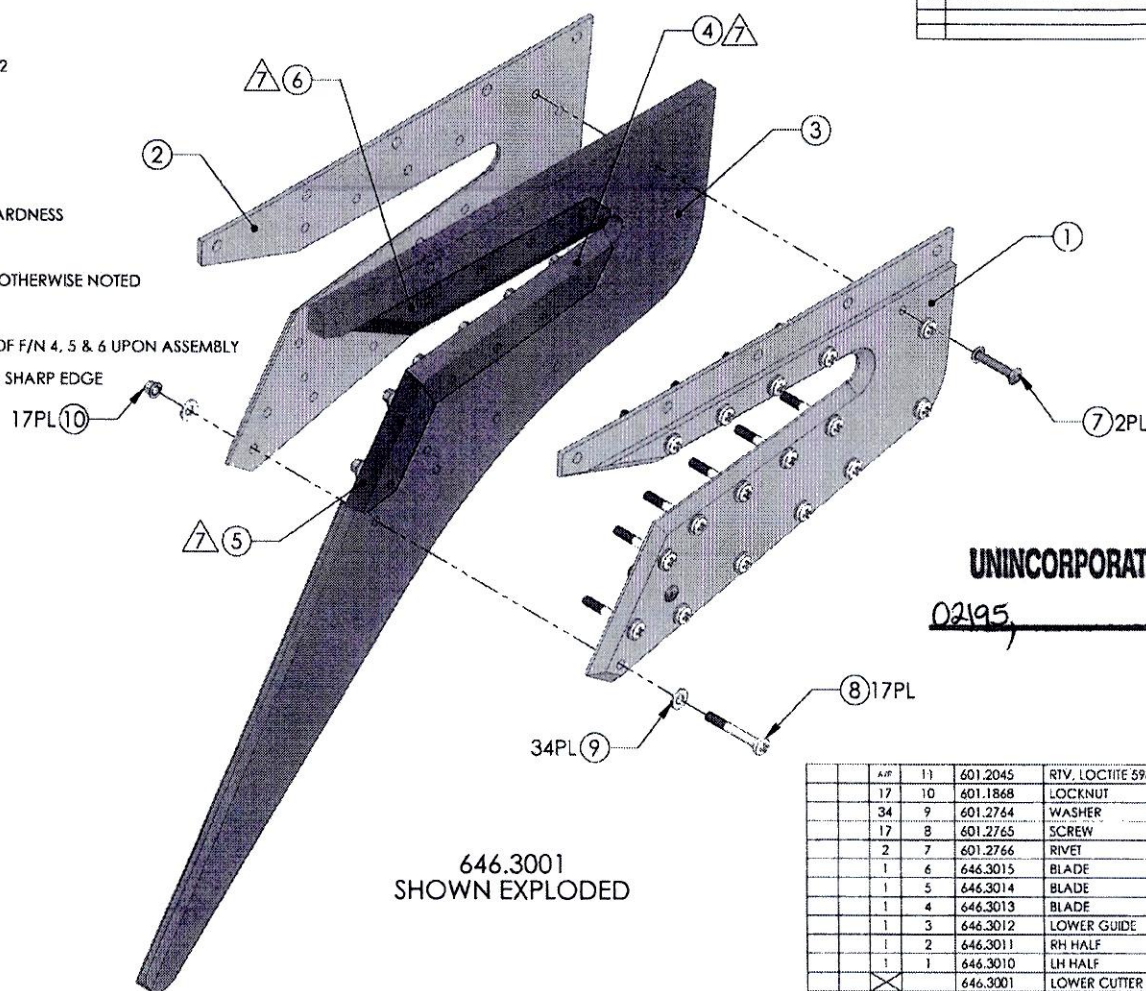


F/N	TC	PART NUMBER	QTY	DESCRIPTION	MATERIAL/SPECIFICATION

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NOTES:

- 1 MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12
- 2 FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III, CLASS 2, COLOR BLACK; CARDINAL 4860-50 PRETREATMENT PRIMER PRIME IAW MIL-P-23377J TYPE I CLASS N
- 3 MATERIAL: AISI A2 TOOL STEEL
CONDITION: ANNEALED
POST PROCESS: HEAT TREAT TO 58-62 Rc ROCKWELL HARDNESS
- 4 FINISH: PRIME IAW MIL-P-23377J TYPE I CLASS N
- 5 DEBURR AND BREAK ALL SHARP EDGES EXCEPT WHERE OTHERWISE NOTED
- 6 IDENTIFY IAW MPP-120
- 7 APPLY F/N 11 AS REQUIRED TO ALL FAYING SURFACES OF F/N 4, 5 & 6 UPON ASSEMBLY
- 8 CUTTING EDGE INTENDED TO BE SHARP, DO NOT BREAK SHARP EDGE



UNINCORPORATED ECN(s)

02195

646.3001
SHOWN EXPLODED

QTY	REV	FIND #	PART #	DESCRIPTION	MATL	SPEC.
17	10	601.2045	RIV. LOCITE 598			
34	9	601.1868	LOCKNUT	MATCO 1047-08		
17	8	601.2764	WASHER	MATCO 1047-08		
2	7	601.2765	SCREW	MATCO 1047-08		
1	6	601.2766	RIVET	MATCO 1047-08		
1	5	646.3015	BLADE			
1	4	646.3014	BLADE			
1	3	646.3013	BLADE			
1	2	646.3012	LOWER GUIDE			
1	1	646.3011	RH HALF			
1	1	646.3010	LH HALF			
1	1	646.3001	LOWER CUTTER ASSY			
QTY	REV	FIND #	PART #	DESCRIPTION	MATL	SPEC.
17	10	601.2045	RIV. LOCITE 598			
34	9	601.1868	LOCKNUT	MATCO 1047-08		
17	8	601.2764	WASHER	MATCO 1047-08		
2	7	601.2765	SCREW	MATCO 1047-08		
1	6	601.2766	RIVET	MATCO 1047-08		
1	5	646.3015	BLADE			
1	4	646.3014	BLADE			
1	3	646.3013	BLADE			
1	2	646.3012	LOWER GUIDE			
1	1	646.3011	RH HALF			
1	1	646.3010	LH HALF			
1	1	646.3001	LOWER CUTTER ASSY			

APICAL INDUSTRIES

2608 TEMPLE HEIGHTS DR.
OCEANSIDE, CA. 92056-3512 (760) 724-5300

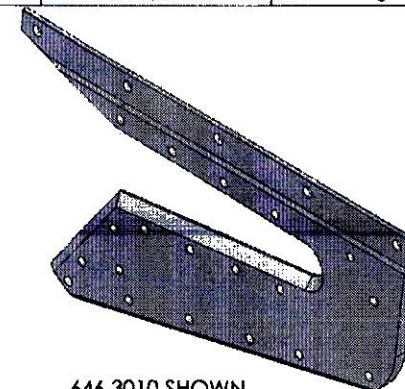
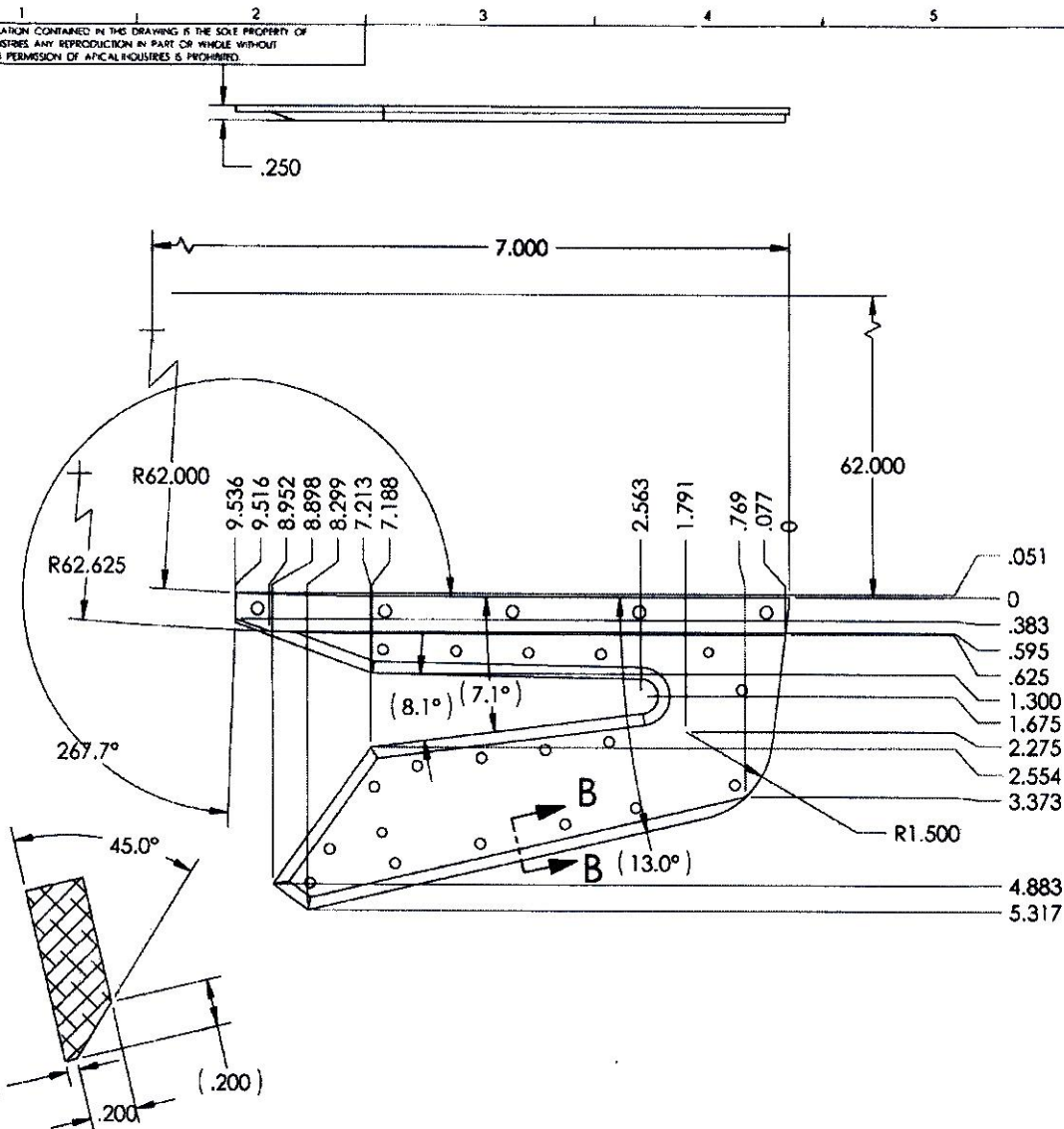
LOWER CUTTER ASSY

1/1 CAGE CODE DWG NO. 646.3000

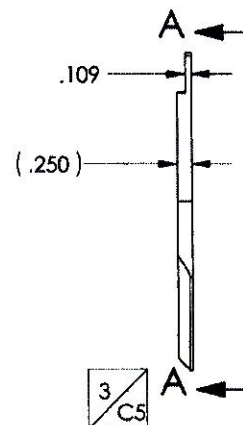
SCALE NONE

SHEET 1 OF 8

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646.3010 SHOWN
646.3011 OPPOSITE

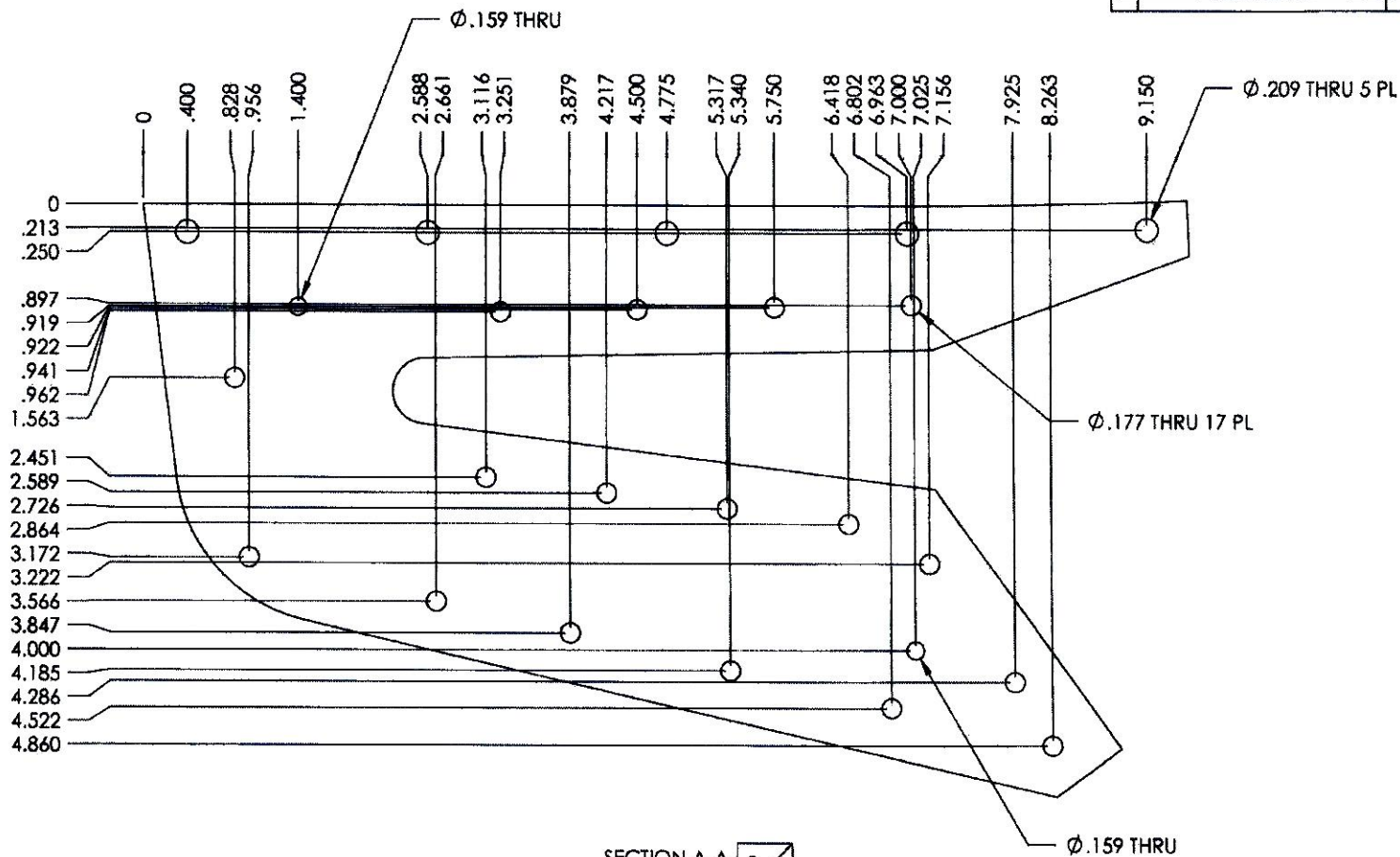


SECTION B-B
TYP EDGE DETAIL

DESIGN: DATE 10/04/08		APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300	
DRAWN BY: E. JOSEPH P. BRAYO		DRAWING APPROVAL: S. JOSEPH	
CONTRACT NO.		LOWER CUTTER ASSY	
1. UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACES DECIMALS .001 3 PLACES DECIMALS .0005 ANGLES ± .5°		SIZE: B CODE: 07A426 SCALE: NONE	DWG. NO: 646.3000 REV: N/C SHEET 2 OF 8

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REVISIONS			
REV	DESCRIPTION	DATE	APPROVED



2
C7

ORIGINAL DATE: 08-20-08		APICAL INDUSTRIES	
DESIGNED BY: J. JOSEPH		2608 TEMPLE HEIGHTS DR.	
DRAWN BY: P. BRAYO		OCEANSIDE, CA. 92056-3512 (760) 724-5300	
CHECKED BY: J. JOSEPH		LOWER CUTTER ASSY	
CONTRACT NO.		SER: 646.3000	
UNLESS OTHERWISE SPECIFIED		SCALE: NONE	SHEET: 3 OF 8
DIMENSIONS ARE IN INCHES			
TOLERANCES ARE:			
2 PLACE DECIMALS: ±.01			
3 PLACE DECIMALS: ±.005			
4 PLACE DECIMALS: ±.0005			

7



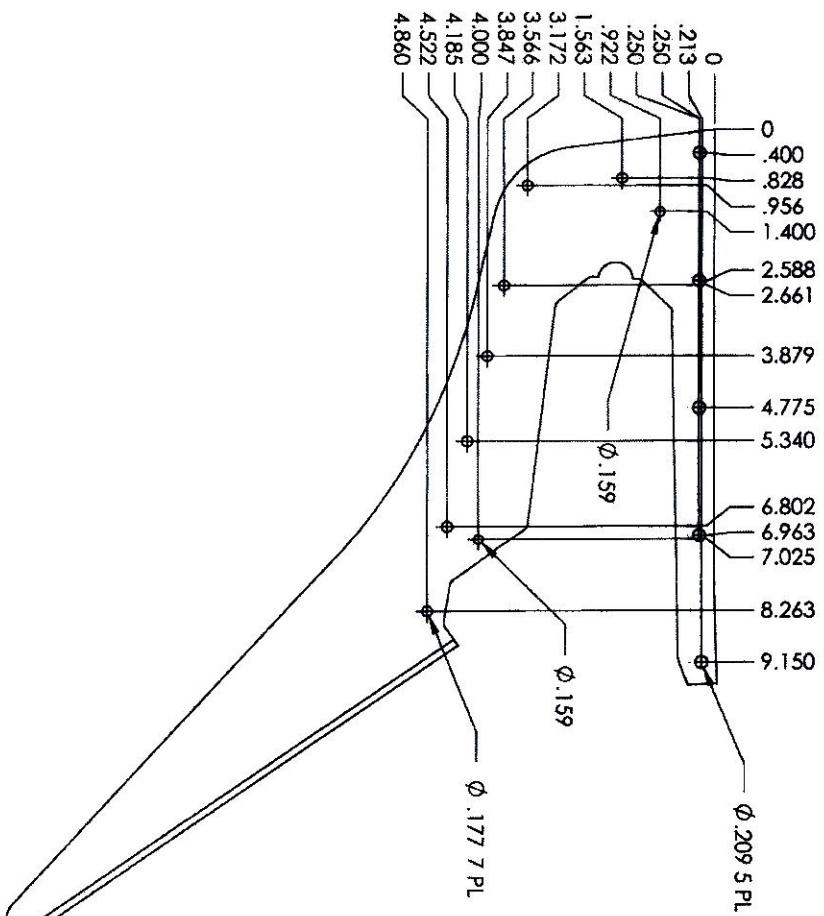
646.3012

SECTION D-D

LOWER CUTTER ASSY

APICAL INDUSTRIES
2608 TEMPLE HEIGHTS DR.
OCEANSIDE, CA. 92056-3512 (760) 724-

[illegible]



SECTION F-F

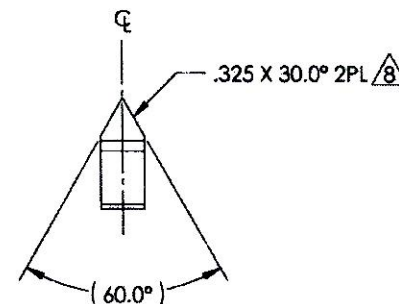
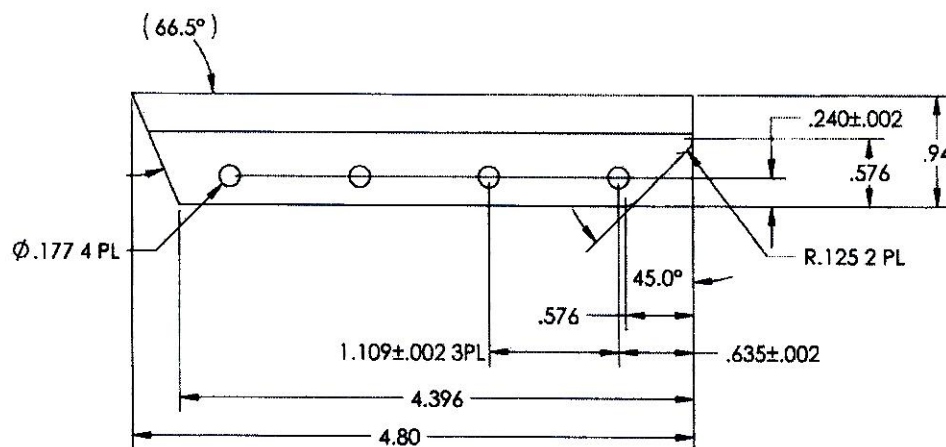
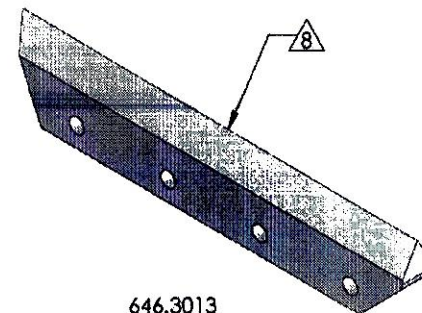
4
B6

[illegible]

APICAL INDUSTRIES 2408 TEMPLE HEIGHTS DR. OCEANSIDE, CA 92056-3512 (760) 774-5200	
LOWER CUTTER ASSY	
QTY 1 PART NO. 07046 SCALE NONE	DWG NO. 646-3000 SHEET 5 OF 8
DATE 07/04/86 BY 07/04/86 CHECKED 07/04/86 DESIGNED 07/04/86 DRAWN 07/04/86 APPROVED 07/04/86 PART NO. 07046 SCALE NONE	REV 07/04/86 BY 07/04/86 CHECKED 07/04/86 DESIGNED 07/04/86 DRAWN 07/04/86 APPROVED 07/04/86 PART NO. 07046 SCALE NONE

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

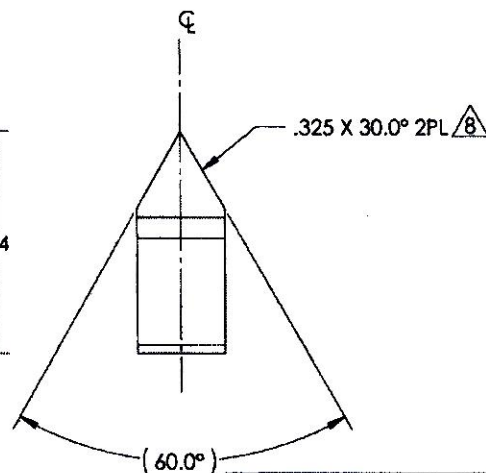
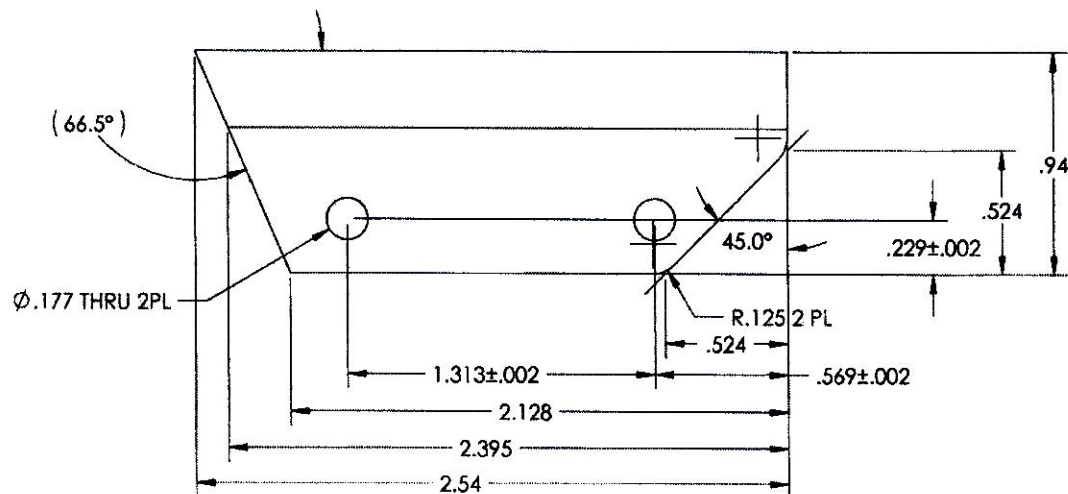
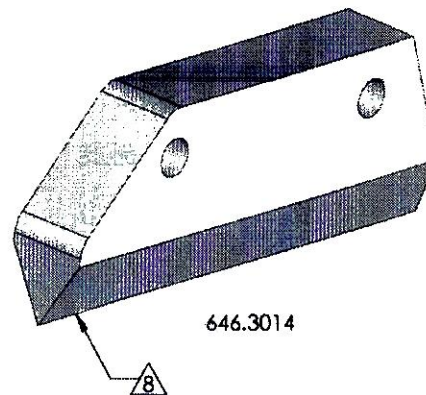
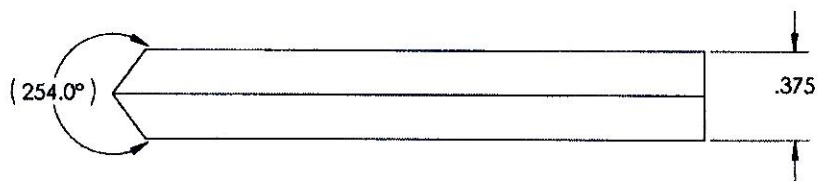
REVISIONS			
REV	DESCRIPTION	DATE	APPROVED



ORIGINAL DATE 08-01-10 DRAWN BY P. BRAY CHECKED S. JOSEPH DRAWING APPROVAL S. JOSEPH DATE 08-01-10		APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.001 ANGLES ±.5°		LOWER CUTTER ASSY SFT. / CAD CODE: 07M26 DWG. NO: 646.3000 SCALE: NONE	
REV: N/A		SHEET: 6 OF 8	

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REV	DESCRIPTION	DATE	APPROVED

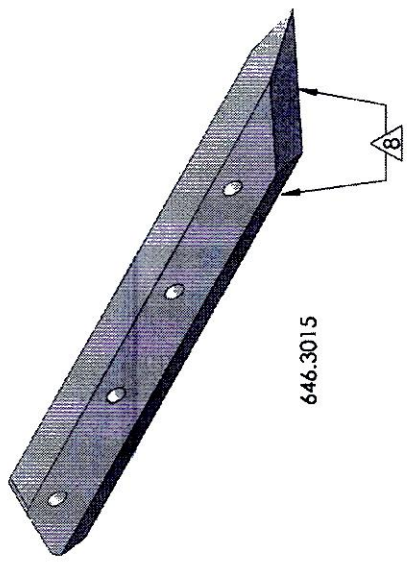
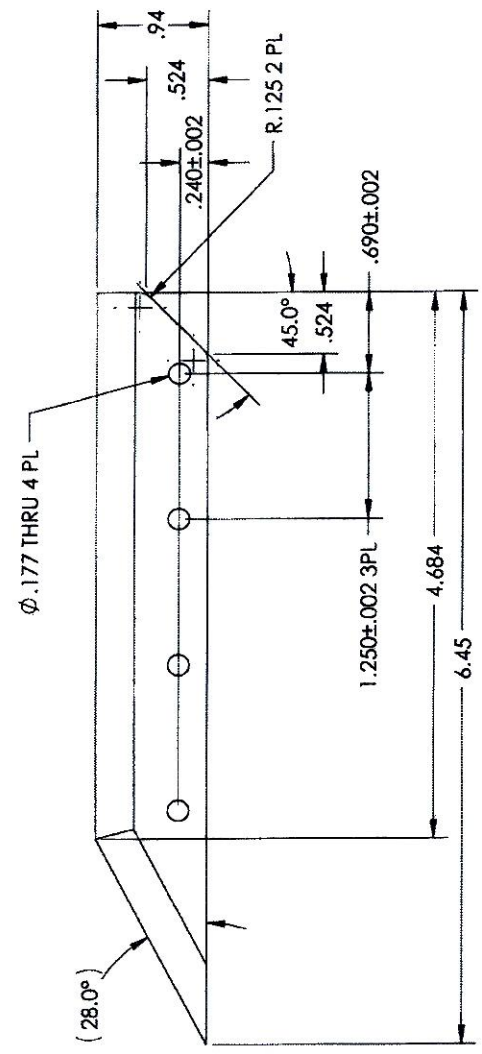
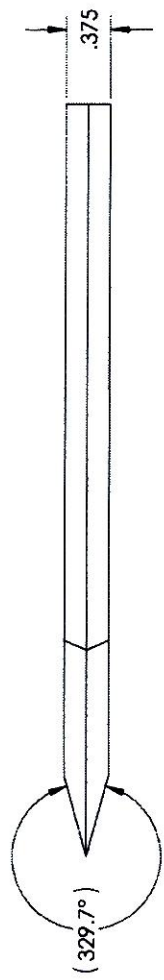


APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056 3512 (760) 724-5300			
LOWER CUTTER ASSY			
ORIGINAL DATE 08/01/01 DRAWN BY P. BRAYO CHECKED BY J. JOSEPH DRAWING APPROVAL L. JOSEPH CONTRACT NO.	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ± .01 3 PLACE DECIMALS ± .005 ANGLES ± .5°	SPC. CODE 8 DWD. NO. 07M16 SCALE NONE	REV. N/C SHEET 7 OF 8

1 2 3 4 5 6 7 8

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REV	DESCRIPTION	DATE	APPROVED



APICAL INDUSTRIES 2408 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300		LOWER CUTTER ASSY	
ORIGINAL DATE: 08/24/98 REVISION: 08/24/98 BY: J. B. B. / J. B. B. DRAWING APPROVAL: [Signature] CHECKED: [Signature] CONTRACT NO.:	SERIAL: 07/01/06 DWG. NO: 646.3000 N/C	SCALE: NONE SHEET: 8 OF 8	



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO34239**

Purchase Order Date 11/8/2016

PO Print Date 11/10/2016

Page Number 1 of 3

Order From :
METCOR INC.
560 BOUL. ARTHUR SAUVE
SAINT-EUSTACHE, QC J7R 5A8
CA

VC-MET004

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

REVISED

Contact Name
Vendor Phone 450 473 1884

Ship To Contact
Ship To Phone
Ship Via: FedEx Economy collect
Ship Acct:

Buyer Chantal Lavoie
Customer POID
Customer Tax # 10127-2607
Terms Net 30
Currency CAD
FOB FCA - (Free Carrier)

Line Nbr	Reference Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	CD	Req Qty/ Unit of Measure	PO Unit Price	Extended Price
		Line Comments	Promise Date				
		Delivery Comments					
1	150610	646.3013 BLADES	11/22/2016 Yes 11/22/2016		10.00	\$8.60	\$86.00
		FINISH: HEAT TREAT TO 58-62 RC ROCKWELL HARDNESS PART ARE MADE FROM AISI A2 TOOL STEEL PLEASE NOTE: DETAIL C OF C REQUIRED					
						Line Total:	\$86.00
2	150682	646.3015 BLADES	11/22/2016 Yes 11/22/2016		10.00	\$8.60	\$86.00
		FINISH: HEAT TREAT TO 58-62 RC ROCKWELL HARDNESS PART ARE MADE FROM AISI A2 TOOL STEEL PLEASE NOTE: DETAIL C OF C REQUIRED					

Note:

11/10/2016

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC J7R 5A8
Tel: 450-473-1884 / Fax: 450-491-5498

Reçu de livraison

Delivery Receipt

BON DE TRAVAIL Order	EXPÉDITEUR Shipper ID	BON D'EXPÉDITION Shipper
315037	1	115393

EXPÉDITION COMPLÈTE / Shipped Complete

CLIENT /Customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053



LIVRÉ À /Shipped To

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053

COMMANDE DU CLIENT Customer PO	BON DE LIVRAISON DU CLIENT Customer Shipper No.	TYPE DE MATÉRIEL Material Type	DATE DE LA COMMANDE Order Date	TRANSPORTEUR Carrier
34239		A2	2016/11/9	fed

QUANTITÉ Quantity	No. PIÈCE / Part No.	NOM DE LA PIÈCE / Part Name	DESCRIPTION DE LA PIÈCE Part Description	POIDS Weight
----------------------	-------------------------	--------------------------------	---	-----------------

40 646.3013 BLADES

(10) 646.3013 150610

(10) 646.3015 150682

(10) 646.3315 150696

(10) 646.3316 150642

14,

SP16-11-17.

1 BOITE DE PLASTI

TYPE DE CONTENEUR Container Type	# DE CONTENEURS # Of Containers	COMMENTAIRES CONTENEUR Container Comments
BOITE DE PLASTI	1	

CERTIFICAT

EMPAQUETAGE Packing	
------------------------	--

QUANTITÉ EXPÉDIÉE / Quantity Shipped : 40

POIDS EXPÉDIÉ / Weight Shipped : 14,00

QUANTITÉ RESTANTE / Quantity Remaining : 0

POIDS RESTANT / Weight Remaining : 0,00

CERTIFICAT

QUANTITÉ EXPÉDIÉE /Quantity Shipped: 40

POIDS EXPÉDIÉ / Weight Shipped : 14,00

Signature:

Date:

EXPÉDIÉ LE / Shipped On : 2016/11/15

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
315037	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

1

COMMANDE DU CLIENT customer po	CLASSIFICATION PIECE part classification	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
34230	N/A	A2		

SPÉCIFICATIONS DU PROCÉDÉ

processing specifications

VAC HARDEN

HARDEN AND TEMPER

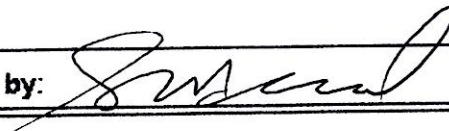
EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results
HARDNESS	58 - 62 HRC	5	60 - 62 HRC

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
40	14	646.3013 BLADES (10) 646.3013 150610 (10) 646.3015 150682 (10) 646.3315 150696 (10) 646.3316 150642 1 BOITE DE PLASTI

15 NOV

COMMENTAIRES / comments

APPROUVÉ par / Approved by:



DATE: 2016-11-15

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité Détail

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
315037	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

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DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

1

COMMANDE DU CLIENT customer po	CLASSIFICATION PIECE part classification	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
34239	N/A	A2		

SPÉCIFICATIONS DU PROCÉDÉ processing specifications

VAC HARDEN

HARDEN AND TEMPER

EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results
HARDNESS	58 - 62 HRC	5	60 - 62 HRC

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
40	14	646.3013 BLADES (10) 646.3013 150610 (10) 646.3015 150682 (10) 646.3315 150696 (10) 646.3316 150642 1 BOITE DE PLASTI

COMMENTAIRES / comments

VAC HARDEN 1750F, 1 HR
DOUBLE TEMPER 400F, 2 HRS

Heat treatment (HT) was performed with equipment that meets the requirements of requested specification. All HT operations were performed in compliance with the required HT specification and all verifications have been performed and documented. No unauthorized changes were performed in regards to the HT. We certify that the material was manufactured, sampled, tested and inspected in accordance with the material specification and the purchase order and was found to meet the requirements.

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Le traitement thermique (TT) a été fait en utilisant des équipements en conformité avec la spécification demandée. Toutes les opérations de TT ont été faites en conformité avec les requis de la spécification demandée et toutes les vérifications et les tests demandés ont été faites et documentés. Aucun changement n'a été faite par rapport au TT. On certifie que le matériel a été fabriqué, échantillonné, testé et inspecté en accord avec les spécifications du matériel et le bon de commande et le matériel rencontre les exigences spécifiées.

Ce document et les documents qui lui sont joints peuvent contenir des informations confidentielles. Être soumis aux

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité D tail

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
315037	1

CLIENT / customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

LIVR    / shipped to:

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

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APPROUV  par / Approved by:

Isabel Otero
QA Technician

DATE: 2016-11-15

